



2825

Please type a plus sign (+) inside this box TMPTO/SB/21 (6-98) (modified)
Approved for use through 09/30/00. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

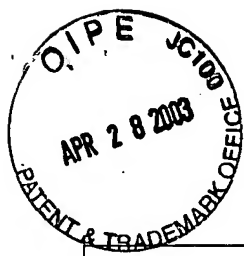
TRANSMITTAL FORM (to be used for all correspondence after initial filing)		Application Number	10/041,957
		Filing Date	1/7/02
		First Named Inventor	Steven Teig
		Group Art Unit	2825
		Examiner Name	<none yet>
Total Number of Pages in This Submission	*	Attorney Docket Number	SPLX.P0044

RECEIVED
APR 29 2003
TECHNOLOGY CENTER 2825

Enclosures (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Assignment Papers (for an application)	<input type="checkbox"/> After Allowance Communication to Group
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Group
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declarations(s)	<input type="checkbox"/> Petition to Convert a Provisional Application	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Preliminary Amendment	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input checked="" type="checkbox"/> Other Enclosures (Listed below): Postcard 87 References
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	
<input type="checkbox"/> Request to Rescind Previous Non-Publication Request	<input type="checkbox"/> Request for Refund	
<input checked="" type="checkbox"/> Information Disclosure Statement and PTO-1449	Remarks:	
Certified Copy of Priority Documents		
<input type="checkbox"/> Response to Missing Parts/Incomplete Application		
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm Or Individual name	Mani Adeli, Reg. No. 39,585 of Stattler Johansen & Adeli LLP
Signature	
Date	April 23, 2003

CERTIFICATE OF MAILING			
I hereby certify that this correspondence is being deposited with the United States Postal Services as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on this date: 4/23/03			
Typed or printed name	Mani Adeli		
Signature		Date	April 23, 2003



PATENT
Docket No. SPLX.P0044

CERTIFICATE OF MAILING BY "FIRST CLASS MAIL"

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Assistant Commissioner for Patents, Washington, D.C. 20231 on April 23, 2003.

Manu Aden

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Steven Teig

Serial No.: 10/041,957

Filing Date: 1/7/02

For: METHOD AND APPARATUS FOR
PRE-COMPUTING ROUTES

**INFORMATION DISCLOSURE
STATEMENT UNDER 37 C.F.R. § 1.97**

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, applicants submit for consideration in the above-identified application the documents listed on the attached Form PTO-1449. Copies of the documents are also submitted herewith. The Examiner is requested to make these documents of record. Applicants would appreciate the Examiner initialing and returning the Form PTO-1449, indicating that the information has been considered and made of record herein.

RECEIVED
APR 29 2003
TECHNOLOGY CENTER 2800

This Information Disclosure Statement is submitted within three months of the application filing date or before the mailing date of a first Office Action on the merits; accordingly, no fee or separate requirements are required.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 50-1128** referencing SPLX.P0044. However, the Assistant Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: April 23, 2003

Respectfully submitted,

By: _____

Mani Adeli

Registration No. 39,585

Stattler, Johansen & Adeli LLP
P.O. Box 51860
Palo Alto, CA 94303-0728

Phone No. (650) 752-0990 x102
Fax No. (650) 752-0995

Please type a plus sign (+) inside this box ☐

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet

1

of

1

Application Number

10/041,957

Filing Date

1/7/02

First Named Inventor

Steven Teig

Group Art Unit

2825

Examiner Name

Attorney Docket Number

SPLX.P0044

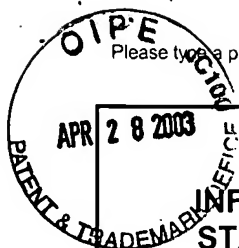
U.S. PATENT DOCUMENTS

Examiner* Initials	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
	1.	2001/ 0003843	A1	Scepanovic et al.	06-14-01	
	2.	4,615,011		Linsker	09-30-86	
	3.	4,673,966		Shimoyama	06-16-87	
	4.	4,782,193		Linsker	11-01-88	
	5.	4,855,929		Nakajima	08-08-89	
	6.	5,097,422		Corbin II et al.	03-17-92	
	7.	5,251,147		Finnerty	10-05-93	
	8.	5,281,151		Arima et al.	01-25-94	
	9.	5,360,948		Thornberg	11-01-94	
	10.	5,375,069		Satoh et al.	12-20-94	
	11.	5,532,934		Rostoker	07-02-96	
	12.	5,578,840		Scepanovic	11-26-96	
	13.	5,633,479		Hirano	05-27-97	
	14.	5,634,093		Ashida et al.	05-27-97	
	15.	5,636,125		Rostoker et al.	06-03-97	
	16.	5,650,653		Rostoker et al.	07-22-97	
	17.	5,657,242		Sekiyama et al.	08-12-97	
	18.	5,723,908		Fuchida et al.	03-03-98	
	19.	5,742,086		Rostoker et al.	04-21-98	
	20.	5,757,656		Hershberger et al.	05-26-98	
	21.	5,777,360		Rostoker et al.	07-07-98	
	22.	5,811,863		Rostoker et al.	09-22-98	
	23.	5,822,214		Rostoker et al.	10-13-98	
	24.	5,859,449		Kobayashi et al.	01-12-99	

Examiner
SignatureDate
Considered

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.



Please type a plus sign (+) inside this box ☐

PTO/SB/08A (08-00) - MODIFIED
Approved for use through 10/31/2002. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/041,957
				Filing Date	1/7/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	SPLX.P0044

U.S. PATENT DOCUMENTS						
	25.	5,898,597		Scepanovic et al.	04-27-99	
	26.	5,914,887		Scepanovic et al.	06-22-99	
	27.	5,973,376		Rostoker et al.	10-26-99	
	28.	6,035,108		Kikuchi	03-07-00	
	29.	6,058,254		Scepanovic et al.	05-02-00	
	30.	6,067,409		Scepanovic et al.	05-23-00	
	31.	6,068,662		Scepanovic et al.	05-30-00	
	32.	6,123,736		Pavisic et al.	09-26-00	
	33.	6,134,702		Scepanovic et al.	10-17-00	
	34.	6,155,725		Scepanovic et al.	12-05-00	
	35.	6,175,950	B1	Scepanovic	01-16-01	
	36.	6,216,252	B1	Dangelo et al.	04-10-01	
	37.	6,230,306	B1	Raspopovic et al.	05-08-01	
	38.	6,247,167	B1	Raspopovic et al.	06-12-01	
	39.	6,260,179	B1	Ohsawa et al.	07-10-01	
	40.	6,262,487	B1	Igarashi et al.	07-17-01	
	41.	6,289,495	B1	Raspopovic	09-11-01	
	42.	6,301,686	B1	Kikuchi et al.	10-09-01	
	43.	6,327,694	B1	Kanazawa	12-04-01	
	44.	6,378,121	B2	Hiraga	04-23-02	
	45.	6,385,758	B1	Kikuchi et al.	05-07-02	
	46.	6,401,234	B1	Alpert et al.	06-04-02	
	47.	6,405,358	B1	Nuber	06-11-02	
	48.	6,412,097	B1	Kikuchi et al.	06-25-02	
	49.	6,412,102	B1	Andreev et al.	06-25-02	
	50.	6,436,804	B2	Igarashi et al.	08-20-02	
	51.	6,446,245	B1	Xing et al.	09-03-02	

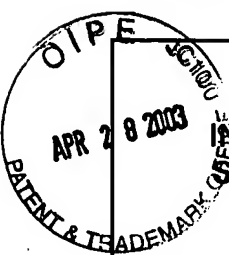
Examiner Signature		Date Considered	
-------------------------------	--	----------------------------	--

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box ☐



Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/041,957
				Filing Date	1/7/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	3	of	3	Attorney Docket Number	SPLX.P0044

U.S. PATENT DOCUMENTS						
	52.	6,463,575	B1	Takahashi	10-08-02	
	53.	6,516,455	B1	Teig et al.	02-04-03	
	54.	2003/0025 205	A1	Shively	02-06-03	

FOREIGN PATENT DOCUMENTS								
Examiner* Initials	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Office ³	Number ⁴	Kind Code (if known) ⁵				
	55.	JP	64-15947		Ouchi	01-19-89		
	56.	JP	04000677		Fujiwara et al.	01-1992		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

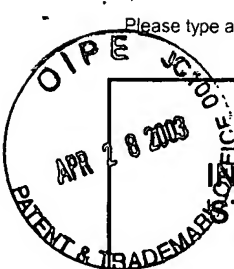
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box ☐

PTO/SB/08A (08-00) - MODIFIED
Approved for use through 10/31/2002. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE



Substitute for form 1449A/PTO				Application Number	10/041,957
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Filing Date	1/7/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	4	of	4	Attorney Docket Number	SPLX.P0044

NON PATENT LITERATURE DOCUMENTS				
Examiner* Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶	
	57.	A.H. Farrahi, et al., Quality of EDA CAD Tools: Definitions, Metrics and Directions, Quality Electronic Design, 2000, Proceedings of the first International Symposium on March 2000, pp 395-405.		
	58.	A. Vannelli, et al., An adaptation of the interior point method for solving the global routing problem, 2/1991, IEEE pp 193-203.		
	59.	B. Berger, et al., Nearly Optimal Algorithms and Bounds for Multilayer Channel Routing, Journal of the Association for Computing Machinery, pp. 500-542, March 1995.		
	60.	C. Chiang, et al., Wirability of Knock-Knee Layouts with 45° Wires, IEEE Transactions on Circuits and Systems, Vol. 38, Issue 6, pp 613-624, June 1991.		
	61.	G. Overtone, EDA Underwriter 2 Finding Space in a Multi Layer Board, Electronic Engineering, Morgan-Grampian LTD, vol. 67, No. 819, pp 29-30.		
	62.	G.D. Hachtel et al., Linear Complexity Algorithms for Hierarchical Routing, 1/89, IEEE pp 64-80.		
	63.	J.D. Cho, et al., Four-Bend Top Down Global Routing, IEEE, pp 793-802, 1998.		
	64.	J. Su et al., Post Route Optimization for Improved Yield Using Rubber-Band Wiring Model, 1997 International Conference on Computer-Aided Design, pp 700-706, November 1997.		
	65.	J. Vicente, RSR: A New Rectilinear Steiner Minimum Tree Approximation for FPGA Placement and Global Routing, Proceedings of the 24 th Euro Micro Conference, pp 192-195, August 1998.		
	66.	K. Powers et al., The 60° Grid: Routing Channels in Width d/square root 3, VLSI, 1991, Proceedings., First Great Lakes Symposium on Kalamazoo, MI, USA, pp 214-291, March 1991.		
	67.	M. Alexander et al., Performance-Oriented Placement and Routing for field-programmable gate arrays, Proceedings of the European Design Automation Conference, pp 80-85, 1995.		
	68.	M. Alexander et al., Placement and Routing for Performance-Oriented FPGA Layout, VLSI Design, Vol. 7, No. 1, 1998.		
	69.	M. Igarashi et al., A Diagonal-Interconnect Architecture and Its Application to RISC Core Design, 2002 IEEE Solid-State Circuits Conference, pp 210-460, February 2002.		
	70.	P. Dood, et al., A Two-Dimensional Topological Compactor with Octagonal Geometry, 28 th ACM/IEEE Design Automation Conference, pp 727-731, July 1991		
	71.	P. Parakh, et al., Congestion Driven Quadratic Placement, Proceedings of Design Automation Conference, 1998, pp 275-278.		
	72.	R. Putatunda et al., VITAL: Fully Automatic Placement Strategies for Very Large Semicustom Designs, Proceedings of the International Conference on Computer Design: VLSI in Computers and Processors, pp 434-439 October 1988.		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	10/041,957
				Filing Date	1/7/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	5	of	5	Attorney Docket Number	SPLX.P0044

NON PATENT LITERATURE DOCUMENTS

73.	S. Dutt, et al., Probability-Based Approaches to VLSI Circuit Partitioning, IEEE Trans. On Computer Aided Design of IC's and Systems, Vol. 19, No. 5, May 2000, pp 534-549.	
74.	Y. Sekiyama et al., Timing-Oriented Routers for PCB Layout Design of High-Performance Computers, International Conference on Computer Aided Design, pp 332-335, November 1991.	
75.	C. Leiserson et al., Algorithm for Routing and Testing Routability of Planar VLSI Layouts, pp 69-78, May 1985.	
76.	S. Das et al., Channel Routing in Manhattan-Diagonal Model, 9 th international Conference on VLSI Design, January 1996. pp 43-48.	
77.	W. Wei-Ming Dai et al., Routability of a Rubber-Band Sketch. 28 th ACM/IEEE Design Automation Conference, 1991. pp 45-65.	
78.	H. Chen, Routing L-Shaped Channels in Nonslicing-Structure Placement. 24 th ACM/IEEE Design Automation Conference, pp 152-165, 1987.	
79.	I. Tollis, Techniques for Wiring in Non-Square Grids, pp 66-69. May 1989.	
80.	E. Lodi et al., A 2d Channel Router for the Diagonal Model, pp 111-125, April 1991.	
81.	E. Lodi et al., Routing in Times Square Mode, pp 41-48, June 1990.	
82.	K. Cheng-Kok et al., Manhattan or Non Manhattan? A Study of Alternative VLSI Routing Architectures. pp 47-52, 2000	
83.	E. Lodi et al., Routing Multiterminal Nets in a Diagonal Model, pp 899-902, 1988.	
84.	D. Staepelaere et al., Surf: A Rubber-Band Routing System for Multichip Modules. pp 18-26, 1993.	
85.	S. Das et al., Routing of L-Shaped Channels, Switch boxes and Staircases in Manhattan-Diagonal Model, pp 65-70m January 1998.	
86.	W. Schiele et al., A Gridless Router for Industrial Design Rule, 27 th ACM/IEEE Design Automation Conference, pp 626-631, 1990.	
87.	J. Nester, A New Look at Hardware Maze Routing, Proceedings of the 12 th ACM Symposium on Great Lakes Symposium on VLSI, pp 142-147, April 2002.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.